

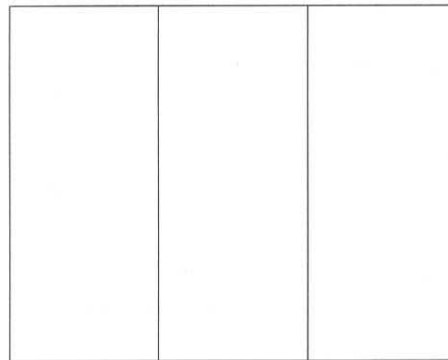
## Equal Portions

### Teaching Goal

After participating in this lesson, students will be able to use a number of tools such as their experiences, prior knowledge, and individual preferences to solve the problem. Students will also be able to support their answers using logic and reasoning.

### Problem

Three friends were sharing a rectangular cake. They had already divided the cake into three equal portions as shown below, when another friend came along. They wanted to share the cake equally among all four friends.



### Teaching Plan

1. Present the problem to the students.
2. Have the students read the problem.
3. Lead a whole-group discussion. Consider using the following questions as part of the discussion:

**What would you do to the already cut cake so that all four friends could share it equally?** There are many ways to resolve the situation. One method would involve making one additional cut to the cake. The cake has already been cut into thirds vertically. One horizontal cut across the cake,  $\frac{1}{4}$  of the way down, would yield six pieces; the three smaller pieces would each equal  $\frac{1}{12}$  of the cake, and the three larger pieces would each equal  $\frac{3}{12}$  of the cake. There would be four portions, each equal to  $\frac{3}{12}$ , or  $\frac{1}{4}$ , of the cake.

$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

**Explain your solution.**

**Is there another way to divide the cake equally? Explain.**

Students may have different solutions, but they should be able to explain the choice they made.

.....

Since the problems in this section are somewhat open-ended, there may be a variety of strategies and solutions. It is important to encourage students to choose a solution that they can defend.

## Problem 7 Planting Plan

On each side of the staircase at the entrance to your school, there is a rectangular plot that is eight feet long and three feet wide. The school wants flowers planted and you have been asked to plan the landscaping for each plot. All plants must have one foot of space between them.

You have up to \$125.00 to spend. The following plant types are available:

Plant Type	Color	Height	Cost
Calla Lily	Red	4 feet	\$4.00 each
Pansies	Assorted	3 inches	\$0.50 each
Ostrich Fern	Dark green	5 feet	\$7.00 each
Azalea	Assorted	3 feet	\$6.50 each
Lantana	Assorted	2 feet	\$2.50 each
Tulips	Assorted	1 foot	\$1.50 each
Daffodils	Yellow	1 $\frac{1}{2}$ feet	\$1.00 each

1. Draw a plan for the design of each rectangular area.

2. Figure the total cost for the plants you choose.

---



---